Rotational Stability Of The Knee Two Years After The ACL And Anterolateral Ligament Reconstruction

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Purpose

It is technically difficult to measure the rotational stability of the knee in vivo in weight-bearing condition. Navigation systems give us such an option. The aim of this prospective controlled blinded randomised study was to evaluate rotational stability at least 2 years after a single-bundle anterior cruciate ligament (ACL) reconstruction using bone-tendon-bone graft from the ligamentum patellae and after the same ACL reconstruction completed with a reconstruction of the anterolateral ligament (ALL) and to compare it with the contralateral healthy knee joint.
Purpose

We have postulated two hypotheses:

1) ACL reconstruction together with ALL reconstruction restores the knee stability in internal rotation (IR) sufficiently;

2) simple ACL reconstruction alone does not restore the knee stability in IR sufficiently in comparison to the healthy knee.
Material and Methods

In both groups (ACL and ACL+ALL), 40 patients selected prospectively at random were evaluated. Only cases with isolated intraarticular ACL lesions and healthy contralateral knees were included. The mean follow-up after the surgery was 26 months (range, 24 to 33 months). For all measurements, the navigation system was used. Measurements were done by the blinded investigator.
Material and Methods

Patients were asked to perform (in 30° weight-bearing flexion) the maximal external trunk rotation to develop the reverse rotation of the tibia against the femur. All measurements were taken on both the reconstructed and healthy knees. Cincinnati, Lysholm, and IKDC scores were used to evaluate clinical results. The nonparametric Wilcoxon test was used to evaluate results.
Results

After the ACL+ALL reconstruction, the mean IR of the tibia was 8,1°. In the contralateral healthy knee joint, IR was 8,6° at average. We did not find any statistically significant difference in IR stability between reconstructed and healthy knees (p > 0.05). After the simple ACL reconstruction, the mean IR was 9,9°. In the contralateral healthy knee joint, IR was 8,7° at average. We found the statistically significant difference in IR stability between reconstructed and healthy knees (p < 0.05).
Results

• In terms of clinical results (Cincinnati, Lysholm, IKDC), knees after ACL+ALL reconstruction behaved better but without any statistically significant difference between both groups.
Conclusions

The data confirmed both hypotheses. The ACL+ALL reconstruction restores the rotational stability of the knee joint without any significant difference in comparison to the contralateral healthy knee. We cannot state the same for the simple ACL reconstruction.
References

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• **Combined Anterior Cruciate and Anterolateral Ligament Reconstruction in the Professional Athlete: Clinical Outcomes From the SANTI Group in a Series of 70 Patients With a Minimum Follow-Up of 2 Years.**